



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,976	02/09/2001	Martin Czech	Micronas.5903	2248

7590 12/04/2003

Patrick J. O'Shea, Esq.
Samuels, Gauthier & Stevens, LLP
Suite 3300
225 Franklin Street
Boston, MA 02110

EXAMINER

LOKE, STEVEN HO YIN

ART UNIT	PAPER NUMBER
----------	--------------

2811

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/780,976

Applicant(s)

CZECH ET AL.

Examiner

Steven Loke

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6,8,9 and 12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8,9 and 12 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. Claims 6, 8, 9 and 12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Fig. 7 discloses an unsymmetrical lateral thyristor comprising a region [41] of the second conduction type, and including a terminal [40] that is introduced into a field oxide region [30], wherein the terminal [40] is connected to a circuit that is being protected. The specification never discloses the device of fig. 7 can be combined with the device of fig. 4. Therefore, the specification never discloses the lateral thyristor structure of claim 1 further comprising a region of the second conduction type, and including a terminal that is introduced into a field oxide region, wherein the terminal is connected to a circuit that is being protected as claimed in claim 6.

Fig. 4 discloses a symmetrical lateral thyristor structure having a second strongly doped region [23, 23'] of the first conduction type that is introduced into the well region [21, 21'] and is electrically connected to a second terminal [27, 27'] and a third strongly doped region [24, 24'] of the second conduction type, which is introduced into the well region [21, 21'], and is electrically connected to the second terminal [27, 27']. The specification never discloses a symmetrical lateral thyristor structure having a second strongly doped region of the second conduction type that is introduced into the well region [21] and is electrically connected to a second terminal [27] as claimed in claim 12. The specification also never discloses a symmetrical lateral thyristor structure

Art Unit: 2811

having a second strongly doped region of the second conduction type that is introduced into the well region [21'] and is electrically connected to a second terminal [27'] as claimed in claim 12.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claim 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Cheng et al.

Cheng et al. show all the elements of the claimed invention in figs. 5 and 6. It is a lateral thyristor structure for protection against electrostatic discharge, comprising: at least two lateral thyristors (one located in section A and the second one located in section B), which each include a semiconductor substrate [21] of p-type, with a surface; a well region (N-Well) of n-type, opposite to p-type, which is introduced into the surface of the substrate [21]; a first n+ type region [628] that is introduced into the surface of the substrate and is electrically connected to a first terminal; a second p+ type region [622] that is introduced into the well region (N-Well) and is electrically connected to a second terminal; a third n+ type region [620], which is introduced into the well region (N-Well), and is electrically connected to the second terminal; and a fourth n+ type region [624], which is introduced into the surface of the substrate [21] and into the well region (N-

Art Unit: 2811

Well), and is spatially situated above a pn junction that is formed between the substrate [21] and the well region (N-Well), and between the third region [620] and the first region [628].

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng et al.

In regards to claim 3, Cheng et al. differ from the claimed invention by not showing a field oxide region that is situated between the second doped region and the fourth doped region.

Chen et al. disclose a field oxide region (SiO_2) that is situated between the p+ type region [26] and the n+ type region [36] in fig. 3b.

Since both Cheng et al. and Chen et al. teach a SCR for ESD protection, it would have been obvious to have the field oxide region of Chen et al. in Cheng et al. because it provides insulation between two highly doped regions.

In regards to claim 4, Cheng et al. disclose the first conduction type is p-type and the second conduction type is n-type.

In regards to claim 5, Chen et al. further disclose the first terminal is connected to ground [39], and the second terminal is connected to a signal input line [38].

Art Unit: 2811

6. Applicant cannot rely upon the foreign priority paper to overcome the above rejections because a translation of said paper has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.
7. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter: The major difference between the claim and the prior art of record is a field oxide region that is situated between the first strongly doped region and the fourth strongly doped region.
9. Applicant's arguments filed 9/11/03 have been fully considered but they are not persuasive.

It is urged, in page 6 of the remarks, that claim 12 has been amended to overcome the 112, first paragraph rejection. However, claim 12 is still rejected under 35 USC 112, first paragraph as set forth in the present Office Action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven Loke whose telephone number is (703) 308-4920. The examiner can normally be reached on 7:50 am to 5:20 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Art Unit: 2811

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

sl
December 1, 2003


Steven Lake